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OCTOBER 9, 1948

SCIENCE NEWS LETTER

OCT 12 1948
DETROIT

THE WEEKLY SUMMARY OF CURRENT SCIENCE

Where Icebergs Are Born

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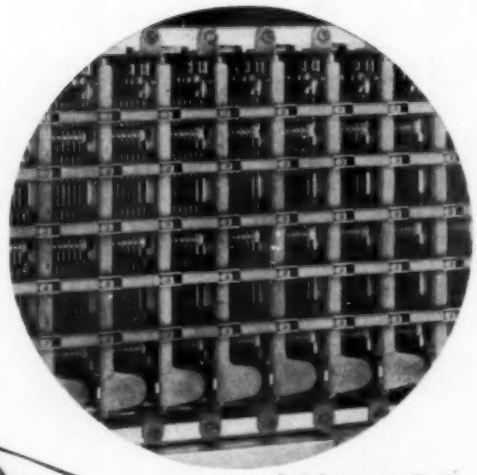
A SCIENCE SERVICE PUBLICATION

$5.50 A YEAR

VOL. 54 NO. 15

T W X



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MEDICINE

Check Jaundice in Blood

Ultraviolet ray treatment of blood plasma will prevent this virus disease from being transmitted from the blood donor to the patient getting a transfusion.

▶ THE DANGER of getting jaundice from blood plasma or blood serum can be prevented by ultraviolet ray treatment of the plasma or serum, five medical researchers report in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION (Oct. 2).

The five are Drs. Mercer C. Blanchard, Joseph Stokes, Jr., Bettylee Hampil, George R. Wade and John Spizizen of the University of Pennsylvania School of Medicine and the medical research division of Sharp and Dohme, Inc.

The jaundice they studied is not the kind that comes in epidemics such as attack school children, but the kind called homologous serum hepatitis which attacked many battle casualties some months after receiving blood or plasma transfusions or both. The disease is due to a virus.

There are no laboratory tests to detect this virus in plasma or serum so there is no way of knowing whether pooled plasma from many donors contains the virus.

The Philadelphia scientists gave to 15 human volunteers serum known to contain the virus, because it came from the blood of persons in the early stages of the disease. Of the 15, almost half, or 47%, developed the disease. Another 11 volunteers were given almost double the dose of serum from the same lot, but which had first been irradiated with ultraviolet. None of these showed the slightest sign of the disease during an observation period of five months.

Tests of irradiated serum and plasma show that it does not undergo chemical changes which could cause allergic reactions. The scientists therefore conclude that the method is "practical, safe and effective," and that their results strongly favor the routine use of ultraviolet treatment of serum and plasma under properly standardized conditions.

Science News Letter, October 9, 1948

PHYSICS

Food Sterilized by Rays

▶ BOTH X-RAYS and cathode rays offer new and effective means of producing sterilization of bacteria, changes in the structure of living tissue and chemical changes.

Rays of either kind produced at high voltages destroy strong concentrations of bacteria, yeasts and molds, it was discovered in experiments conducted by a group of Massachusetts Institute of Technology scientists. Drs. J. G. Trump, R. J. Van de Graaff, Cecil G. Dunn, William L. Campbell, Harvey Fram and Ardelia Hutchins report their findings in the JOURNAL OF APPLIED PHYSICS (July), a publication of the American Institute of Physics.

The sterilizing effect of these rays was very good in the cases of raw and pasteurized milks, soil and waters. But, strangely enough, sterilization of apple juice proved much more difficult.

The rays will destroy enzymes, chemicals in the body which will encourage other chemicals to react without being affected themselves. Butter and olive oil treated with X-rays and cathode rays became rancid more quickly. The orange-yellow color of the butter is gradually destroyed as the radiation is increased.

In one experiment grapefruit and orange juice were irradiated to see if the vitamin C they contain would be destroyed. The rays markedly reduced the vitamin C concentration.

The milk-sterilizing experiment which used cathode rays at 2,000,000 electron volts may result in a better, more efficient method for sterilizing milk than any found so far. Before the cathode rays were directed on the milk, it contained about 37,000,000 bacteria to a milliliter (approximately 61 thousandths of a cubic inch), afterwards only two bacteria were found in a milliliter.

The changes that the X-rays and cathode rays cause are due to the disturbance aroused in the atoms of the receiving substance when the particles in the rays hit it. In the X-rays the energy is carried by photons, or "light darts," little lumps of light energy whose existence was first suggested by Einstein. In cathode rays electrons do the same job.

Although X-rays are more penetrating than cathode rays the latter are several hundred times more efficient. These rays can be easily controlled so that scientists know exactly how many electrons are hitting the substance at which they are aimed. In addition, all the electrons aimed at the substance from a cathode ray source will hit it while with an X-ray source only a small fraction of the energy formed is actually delivered to the substance being irradiated.

One method commonly used for killing bacteria is heating them to high temperatures. By the use of X-rays and cathode rays sterilization is accomplished with a rise in temperature of only two degrees Centigrade (3.6 degrees Fahrenheit).

Science News Letter, October 9, 1948

ARCHAEOLOGY

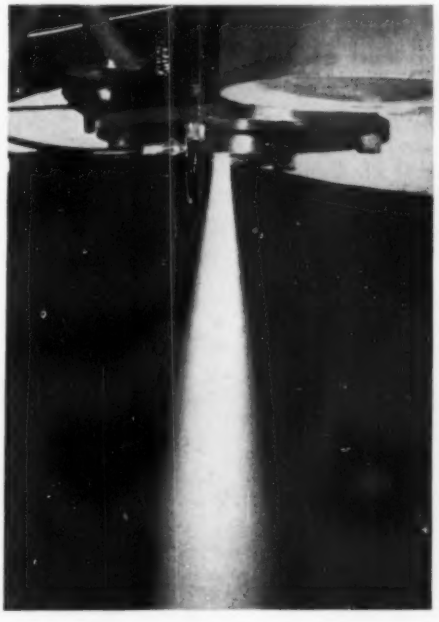
Famous "Norse" Tower Still Remains Mystery

▶ THE FAMOUS round stone tower at Newport, R. I., claimed to be of Viking origin by some and hotly disputed by others, has been given its first professional archaeological going-over—and it keeps its secret still. Another season's digging will be needed to come close to a settlement of the generations-old dispute, in the opinion of William Godfrey, Harvard archaeologist who carried on the work this year.

With funds provided by an anonymous donor to the Preservation Society of Newport County, Mr. Godfrey drove a trench from 78 feet outside the tower straight through one of its arches and out the other side. Digging was carried down to bedrock, or to a layer of heavy, blue-gray clay.

Nothing of significance was found in the ground outside the tower, because of heavy grading operations late in the nineteenth century.

The tower itself stands on a foundation



CATHODE RAY BEAM — High energy electrons in this beam are capable of killing bacteria and causing chemical changes in food. The beam is visible because some of this tremendous energy is given off in the form of light.

of tumbled boulders, which were rolled into a circular trench. On these, low masonry drums four feet in diameter were built, and on the drums the eight supporting pillars of the tower were erected. Arches carried the closed circular upper room at the top.

Mortar was a crudely made mixture of sand and lime, of a type that might have been made at any time from the eighth century until the invention of portland cement. The tower room had two coats of plaster, one white, one gray, of the same kind of material.

Beneath the tower was a layer of charred wood, covered thinly with soil and mixed with fallen plaster. This was left by a fire, when British soldiers burned the tower's floor during the Revolutionary War.

Digging in the soil under the tower turned up quantities of pottery and glass fragments of Colonial date, together with pennies dated from 1696 to 1700, also one Connecticut penny dated 1787, and some nails, buttons and other miscellaneous metal objects. There was nothing that could be identified as Norse, or of earlier than late seventeenth-century date.

It is known that Governor Benedict Arnold of the Colony of Rhode Island, grandfather of the well-known Revolutionary War general, had a wooden windmill on the tower. However, it is not known whether he put up the stone structure, or simply took advantage of it because it was already there.

So as of this date, the riddle of the tower, which inspired Longfellow's famous poem, "The Skeleton in Armor," and many reams of less noteworthy writing, still remains unsolved.

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Letters To The Editor

Gardens Out of Swamps

"Wasting Wet Acres" (SNL, Aug. 28) is a most timely article and should have the close attention of all sincere conservationists!

The waters of the swamp lands are saturated with the minerals necessary for plant growth. To drain these waters off is practically to leach out many of the mineral elements and thus impoverish the land. True, the excess of water acts as a deterrent for the growth of many plants, which are acclimated to drier soil. But how about hydroponics?

Would it not be possible by the addition of certain salts to convert a swamp into a great hydroponic garden? — Adolph H. Weber, Berkeley, Calif.

By no means are all wet areas rich in minerals needed for plant growth. Acid-water bogs (as distinguished from neutral-water swamps) are notoriously poor in minerals; either they are locked up in unavailable forms, or they just plain aren't there at all, having been leached out long ago. In some swamp areas, too, the leaching effect is pretty bad.

Another thing: Hydroponics, as practiced now, is better adapted to rainless, or nearly rainless, climates. . . . How to modify hydroponic methods to make rain an advantage instead of a drawback will probably take some hard work by experts.

Good Coverage

This is just a note of appreciation for all of the fine stories you are doing for the University of California African Expedition in Science Service publications. We all sincerely appreciate the accurate reporting and good coverage that you have given to the Expedition's activities (SNL, Aug. 28, Sept. 4).—Bill Terry, Field Executive, U. of Calif. African Expedition.

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There are some 1,400 separate parts in an electric *refrigerator*.

A federal soil scientist says that there are some 1,300,000,000 acres of *unused land* in the world that could be developed for crop production.

A standard-gauge *railroad* at Climax, Colo., is 11,319 feet above sea level; this is the highest elevation at which any standard-gauge American railway operates.

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SCIENCE NEWS LETTER
Vol. 54 OCTOBER 9, 1948 No. 15

55,500 copies of this issue printed

The Weekly Summary of Current Science, published every Saturday by SCIENCE SERVICE, Inc., 1719 N St., N. W., Washington 6, D. C., NOrth 2255. Edited by WATSON DAVIS.

Subscription rates: 1 yr., $5.50; 2 yrs., $10.00; 3 yrs., $14.50; single copy, 15 cents, more than six months old, 25 cents. No charge for foreign postage.

Change of address: Three weeks notice is required. When ordering a change, please state exactly how magazine is now addressed. Your new address should include postal zone number if you have one.

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Printed in U. S. A. Entered as second class matter at the post office at Washington, D. C. under the act of March 3, 1879. Established in mimeographed form March 18, 1922. Title registered as trademark, U. S. and Canadian Patent Offices. Indexed in Readers' Guide to periodical Literature, Abridged Guide, and the Engineering Index.

Member Audit Bureau of Circulation. Advertising Representatives: Howland and Howland, Inc., 393 7th Ave., N.Y.C., PEnnsylvania 6-5566 and 360 N. Michigan Ave., Chicago, STAte 4439.

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PUBLIC HEALTH

New Ranking for Killers

New system which ranks leading causes of death by working years lost topples present standing of heart diseases and cancer from top position.

➤ HEART DISEASE as a leading cause of death takes second place, cancer drops to fourth and pneumonia moves up into third place. These are the rankings under a new system worked out by Dr. Frank G. Dickinson, director of the Bureau of Medical Economic Research of the American Medical Association.

This new measure ranks leading causes of death by working years lost. By this yardstick, accidents are the leading cause of death between the ages of 20 and 65, the working years of American people.

Life years lost constitute another new measure used to gage the importance of the different causes of death. That is, if statistics show that you have a life-expectancy of 70 years and you die at 50, then 20 life years are lost to you and to society.

Using death rate figures for 1945, Dr. Dickinson said that according to the new measure "A complete cure for heart diseases (or cancer) in 1945 would have added fewer thousands of working years to the total life expectancies of the American people than would the prevention of all accidental deaths."

On this basis, he suggested, emphasis on accident prevention would be a means of lengthening life and increasing productive power.

It also shifts the responsibility to the shoulders of the layman. It is the layman's job to prevent accidents, Dr. Dickinson declared.

The standard method of ranking leading causes of death by the number of people who die from each cause is an unsatisfactory index to the loss suffered by society and the age of the victims, he pointed out in the MEDICAL ANNALS OF THE DISTRICT OF COLUMBIA (Sept.).

Numerically, the seven leading causes of death in 1945 were in order of importance: heart diseases, cancer, injuries to the brain, accidents, diseases of the kidneys, pneumonia, and tuberculosis.

These same diseases, measured by the number of life years lost, were in order of importance: heart diseases, accidents, cancer, pneumonia, brain injuries, tuberculosis, and diseases of the kidneys.

When measured in terms of working years lost, they were: accidents, heart diseases, pneumonia, cancer, tuberculosis, brain injuries and kidney diseases.

"The task of the physician is not to eradicate death from the face of the earth, but to prolong life and to relieve pain," Dr. Dickinson concluded.

"Regardless of the measure used, the success of the American physician in carrying out his task cannot be denied. The layman, unfortunately, has not done his share to prolong life by reducing the surprisingly high totals of life years and working years lost from fatal accidents."

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METEOROLOGY

Atomic Age Smoke Signals Sent from Weather Tower

➤ FIRST atomic age smoke signals have been sent from the giant weather tower at the Brookhaven National Laboratory in Upton, N. Y. (*See SNL*, July 31.)

The smoke "signals," formed by a harmless fog, are used to trace the speed and course of wind over the laboratory. This study will permit sending off harmlessly into the air waste radioactive gas from a new atomic pile when it is completed.

Smoke from the 355-foot tower is photographed by weather observers in mobile stations. The fog behaves in the air in the same way the radioactive gases will.

Science News Letter, October 9, 1948

TECHNOLOGY

Chigger-Proof Clothing Now Stands Many Washings

➤ CHIGGER-PROOF clothing for outdoor workers and vacationers that will keep its protective power through as many as seven washings can now be produced, entomologists of the U. S. Department of Agriculture announced. The garments are impregnated with two hitherto unused chemical compounds, phenyl carbonate and x,x'-dichlorodiphenyl ether.

The new chigger-proofing method is a postwar development in a program undertaken by the Department of Agriculture for the Army during the war. It was particularly necessary to protect troops in the Southwest Pacific area against the attacks of bloodsucking mites that carried an insidious disease known as scrub typhus. The compounds first used, while successful against the mites, would not stay in the fabric when it was washed.

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WORLD'S LARGEST TESTING MACHINE—This 5,000,000 pound machine will be used for testing the lightest weight aluminum and magnesium structures that aeronautical engineers can design. It will enable engineers to measure the loads that the largest and strongest airplane structural elements will withstand; to modify their design and minimize weight; and to solve the principal problems of designing full-scale aircraft on the basis of small-scale model design and tests. It was demonstrated the first time officially in the Aeronautical Structures Laboratory at the Philadelphia Naval Base.

MEDICINE

Public Must Aid Doctors

In order to solve the problem of the shortage of professional personnel, full support of government and the man on the street is needed.

➤ FEDERAL, state and municipal governments, private philanthropists and the man in the street must all chip in to solve our most urgent medical and health problem, the shortage of professional personnel, Dr. Leonard A. Scheele, Surgeon General of the U. S. Public Health Service, declared at the meeting of the Medical Society of the District of Columbia in Washington.

"The total problem of medical education is so vast," he said, "that we should not expect it to be solved with less than active support from all sources."

Medical students of the future will again receive part of their training in the patient's home, as they did when they served their apprenticeships with the old family doctors, Dr. William S. McCann, of the University of Rochester School of Medicine and Dentistry, predicted at the same meeting.

This is part of the major change in trend of medical education toward emphasis on the emotional and sociological phases of sickness.

A change in the rules for postgraduate training set by specialty boards which certify doctors as competent to practice as experts in a special field of medicine must also come, Dr. McCann believes, as part of the evolution of medicine. Without such change he sees the downfall of the boards which have in the past done much to raise the level of competence in the specialties.

The current plans of the U. S. Public Health Service, Dr. Scheele stated, follow three major trends which were established before World War II and have been extended during the postwar period. These are: 1. expansion of research in medical and related sciences; 2. rapid development of public health programs to accomplish specific purposes, such as tuberculosis control or control of degenerative and other chronic diseases; 3. expansion of Federal support for these activities, primarily through aid to state agencies, public and private non-profit institutions, and individual professional men and women.

"The recent emphasis on cancer, cardiovascular diseases and mental health are logical developments in public health," he said.

A continuous rise in death rates from these diseases has accompanied the aging of the population, he pointed out. For the past 15 years there has also been an increasing volume of mental disease and psychic maladjustment.

"As yet," he said, "we have done very little to deal with the major problems of adults or to change these mortality trends. All of the new medical knowledge and skills have added only two and a half years to the life expectancy of the 40-year-olds. The major steps in public health during the next few years must be toward prevention and control of degenerative and other chronic diseases, including mental disease."

Science News Letter, October 9, 1948

ENTOMOLOGY

DDT Coatings in Planes

➤ INSECTS hitch-hiking in airplanes will be "taken for a ride" in the sinister sense if experiments now being conducted by the U. S. Department of Agriculture work out as well as they promise.

Instead of subjecting the interior of the plane (including the passengers) to a fuming with an aerosol bomb on landing, as at present, the idea is to spray everything with an invisibly fine but lasting film of a deadly DDT-pyrethrum combination that will knock down and kill any insect alighting on it. Laboratory tests have been satisfactory, and field tests are now in progress on several airplanes.

As in the ordinary household aerosol bomb, the pyrethrum is counted on to score a quick knockdown, followed by slower but surer death from the DDT. The tests so far conducted have shown that the solution used will remain effective for eight months or more under laboratory conditions. Shorter useful life under ordinary operating conditions is expected. The solution is applied either as a spray or an aerosol.

In one test described by P. N. Annand, of the Bureau of Entomology and Plant Quarantine, a plane full of Army officers (considerately forewarned) had loosed upon them an assorted lot of flies, mosquitoes, grasshoppers, plantbugs and Mexican bean beetles. Life in the plane was far from dull —for about two minutes, during which the insects contacted the poisoned walls. At the end of three minutes, the six-legged fellow-travellers were all on their backs, waving their legs. At the end of a half-hour they were all dead.

Considerable advantages are expected from the new method for getting rid of insect stowaways, aside from sparing passengers the discomfort of the aerosol-mist fumigation at the end of a transoceanic ride. It will not only stop, much more effectively than the aerosol mist, any unintentional international traffic in insects, but will also kill insects stealing interstate rides, which is now done ineffectually or not at all.

A minor benefit will be the elimination of the occasional bees, yellowjackets and wasps that now make air passengers uneasy by their buzzing buttings against plane windows.

Science News Letter, October 9, 1948

MYCOLOGY

Fungus Growths Found To Damage Paint Surfaces

➤ PAINTS and certain types of plastic surfaces can be damaged and made unsightly by the growth of a widely distributed mold to which little attention has hitherto been paid. Inroads of this fungus, which is known by the deceptively melodious name of Pullularia, have been studied in Miami by Dr. Ernest Shaw Reynolds, industrial plant physiologist.

Pullularia spots were first noticed on a series of painted test panels, exposed to determine the resistance of various kinds of paint to fungus attack and to weather conditions generally. They were black, like soot spots, but would not brush off. On microscopic examination, they proved to be made up largely of dark spore masses. This color characteristic may have been responsible for its name, which is from a Latin word meaning dusky.

Dr. Reynolds grew cultures from spores in the laboratory, and tested the fungus under controlled conditions. It proved ready to attack paints and one type of plastic coating, and was much less discouraged by fungicidal chemicals than several other common types of mold.

A search of the botanical literature showed that Pullularia has been found all over the world, from flax-processing establishments in New Zealand to paper mills in Finland. It has been found associated with diseased conditions in certain warm-climate fruit trees, though it has not been definitely found guilty of causing the diseases. Its newly discovered role as attacker of paints must now be taken into account.

Science News Letter, October 9, 1948

ENGINEERING-AERONAUTICS

Greater Plane Range Seen From New Type of Engine

➤ LONGER RANGES and more power for future planes are predicted from the announcement of a new combination aircraft engine.

The new engine combines a reciprocating engine with three turbines. It is ex-

pected to give 20% more range on the same fuel than conventional engines. It is manufactured by the Wright Aeronautical Corporation, a division of the Curtiss-Wright Corporation. Wright engineers said that the new engine is the most powerful of its kind in the world.

A $32,000,000 contract from the Navy was announced for construction of the new Wright Turbo-Cyclone 18 Compound engine plus standard plane engines.

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CHEMISTRY

Hydrogen and Helium Have Same Atomic Weight

► HEAVYWEIGHT HYDROGEN and lightweight helium are the newest research materials available to scientists from atomic energy piles.

Both the varieties of the two elements have the same atomic weight, three. Ordinary hydrogen, the lightest known chemical element, has an atomic weight of one, while helium, second lightest element, is commonly four.

Called tritium, hydrogen three is the only radioactive form of the element. It can be combined with oxygen to form heavy heavy-water, a different compound than the better known heavy-water.

Helium three is not radioactive and is extremely rare. There is about one-millionth as much helium three in nature as there is of the familiar helium atoms.

Both the new materials are produced at the U. S. Atomic Energy Commission's Argonne National Laboratory in Chicago.

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GENERAL SCIENCE

Iceberg "Census" Taken From Coast Guard Plane

See Front Cover

► THE ANNUAL ICEBERG "census" was made from the air for the first time this year, the U. S. Coast Guard said.

The census is the post-season survey of icebergs, made as the last phase of the International Service of Ice Observation. By counting the thousands of icebergs, scientists can predict the number that may invade shipping paths during the next three years.

A Coast Guard converted B-17 plane was used to make a photographic survey, shown on the cover of this week's SCIENCE NEWS LETTER, of the many icebergs in the Baffin Bay area, source of the icebergs which move southward to menace North Atlantic shipping. With this more accurate record of the Baffin bergs, Coast Guard officials hope to be able to get more accurate predictions of iceberg activity. This will help provide more protection to ships in coming seasons.

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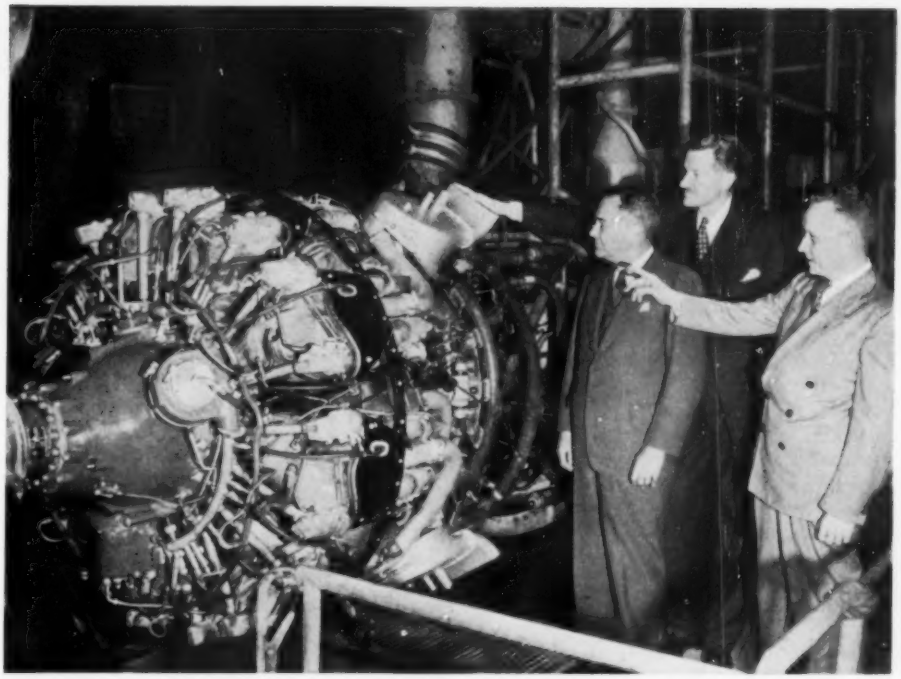

COMBINATION AIRCRAFT ENGINE—It combines a reciprocating engine with three turbines and is credited with being the most powerful aircraft engine of its type in the world. Three officials of the Wright Corporation are shown inspecting the new engine.

MEDICINE

Penicillin Fights Colds

Inhalation of the antibiotic in dust form has proved beneficial in patients with bad colds and more serious diseases of the breathing tract.

► GOOD RESULTS in treating common colds, chronic sinusitis and other, more serious diseases of the breathing tract with inhalations of penicillin dust are reported by three Chicago physicians in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION (Oct. 2).

The physicians are Dr. Louis Krasno of the University of Illinois Medical School and Drs. Mary Karp and Paul S. Rhoads of Northwestern University Medical School.

Common colds were "considered cured" in 42% of the 169 patients treated, with 38% judged as three plus improved. Stuffiness and congestion of the nose often improved immediately after treatment and sometimes the pain of an acutely sore throat was lessened within one-half to one hour after treatment.

Greatest merit of the treatment, the doctors believe, is in bronchitis and bronchiectasis. Twelve of the 38 patients with bronchiectasis were considered much improved and another 17 moderately improved.

The inhalations of penicillin dust were given one to three times daily, three to six minutes usually being required to inhale the amount used. Patients were not allowed to eat or drink for one hour after each inhalation, to avoid washing the penicillin dust from the back of the throat. A mask over nose and mouth was used at first, but later patients were given the inhalations through a plastic mouth inhaler. This keeps the penicillin dust from coming in contact with the skin of the face and thus reduces the possibility of allergic reactions. These occurred in only three to six percent of 357 patients.

Treatments can be given at home and in the doctor's office as well as in the hospital. This permits the patient to "go about his business without loss of time and with minimum expense," the doctors report, adding that before the use of this treatment many patients with chronic lung disease were not given adequate treatment because of the expense of prolonged hospital stay and equipment.

A total of 517 patients have now been given the penicillin dust inhalation treatment.

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ENGINEERING

Mapping Machine Charts Invisible Fields of Force

➤ AN AUTOMATIC field mapping machine which has nothing to do with the work of land surveyors may find important laboratory uses, General Electric Company scientists predicted.

The machine maps the invisible field of force surrounding electrically-charged pieces of metal. It was developed by General Electric, but is not yet available commercially.

Solving of problems in such fields as magnetics, fluid streamlining, heat conduction and airplane propeller blade torsion may be speeded by the new device.

Metal specimens are connected to a power supply and placed in water for tests with the mapping machine. Three tiny probes register the voltage, while the motion of the probes is recorded as lines on a drawing board by a four-foot metal arm.

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PSYCHOLOGY

Accuracy of Plane Speed Estimates Is Studied

➤ CAN YOU WATCH a B-26 plane fly overhead and estimate how fast it is going?

Even officers in the Army Anti-aircraft have trouble in making accurate estimates, the Army Psychological Association learned from Drs. William C. Biel of the Aero Medical Laboratory, Wright-Patterson Air Force Base, and Guy E. Brown, Jr., of Eastern Washington College of Education.

An officer who must aim a gun at a fast-moving plane will be influenced in guessing its speed both by his knowledge of what the plane can do and also by how fast the plane is flying. Planes flying at speeds lower that their ordinary cruising speed will be judged to be flying faster than they are, experiments with 20 officers showed the psychologists.

As the plane is flown at higher and higher speeds, there is a consistent tendency to underestimate its speed more and more.

Difference in direction of the courses had no significant effect on the accuracy of the estimates, it was found.

The errors in speed estimation are great enough to introduce large errors in anti-aircraft gunnery when gun sights are used with which speed of target must be estimated.

Science News Letter, October 9, 1948

ARCHAEOLOGY

400-Year "Lost" Period In Indian Prehistory Filled

➤ THE 400-YEAR "Dark Ages" period in European history, stretching from the fall of Rome to the beginning of the Middle Ages, had its counterpart at about the same time in the prehistory of an important Indian culture. This gap between A. D. 500 and 900 in the known story of the long-vanished Mogollon Indians of the Southwest has been filled in by discoveries made in New Mexico during the past summer, stated Paul S. Martin, anthropologist of the Chicago Natural History Museum.

Previous excavations of the archaeological traces of the Mogollones had shown stages in their cultural evolution from a nomadic hunting people to dwellers in snug pit-houses—in effect, roofed-over cellars. This stopped abruptly at A. D. 500 and took up again at A. D. 900.

The diggings described by Mr. Martin turned up new pit-houses in which the Mogollones lived during the hitherto unknown interim. They were deep, rectangular excavations, with long, stepped-up passage-entryways facing east. Cupboards cut into the earthen walls were used for storing supplies, instead of pits in the floor in the earlier houses hitherto known.

Dishes and kitchenware, represented by pottery fragments, also show an advance in culture. The rather unattractive brown ware found in the older pit-dwellings is replaced by more delicately wrought, pleasingly decorated utensils. The Mogollones were beginning to be civilized.

Science News Letter, October 9, 1948

ANTHROPOLOGY

Columbus Met Indians of Peaceful Disposition

➤ WHEN COLUMBUS first landed in the New World, he met a relatively hospitable, peaceful and nearly civilized group of Indians.

This is the finding of Dr. Irving Rouse of Yale University in a new study of the Arawak Indians who lived in the West Indies at the time of Columbus. The new volume on the Arawaks is one of a series of publications by the Smithsonian Institution which is making an exhaustive study of South American Indians.

The apparently peaceful Arawaks, a tribe of small farmers, were early victims of the invading Spaniards, who took them as slaves and forced them to work in gold mines. They also introduced European diseases which took a high toll. One village of 200 on the British island of Trinidad in the West Indies is the main surviving settlement of Arawaks today.

About the time of Columbus, a group of Arawaks settled in Florida. They appear to have been the original searchers for the "Fountain of Youth," but the fate of these early invaders of Florida is unknown.

In most respects, the Arawaks were like many other American Indian tribes. They wore little clothing and bathed often—more often, in all probability, than the Spaniards. But like many other Indian groups, they were virtually wiped out.

Science News Letter, October 9, 1948

IN SCIEN

ARCHAEOLOGY

Egyptian Scientists Are Aiding U.S. Expedition

➤ TWO LEADING Egyptian scientists, Prof. Gelal Hafez Awad and Prof. Mohamed Mitwally, both of Farouk I University at Alexandria, have been participating in the work of the University of California African Expedition, with field headquarters at Nairobi, Kenya.

Prof. Awad, a geologist, has made extensive collections of specimens and field studies in Kenya and on the island of Zanzibar, where special facilities were made available by the Sultan. Especially good hunting was found among fossils of ammonites, which were coil-shelled distant cousins of the present-day pearly nautilus that lived some 200,000,000 years ago.

Prof. Mitwally, anthropologist, made physical measurements of more than 1,200 African natives, representing nine different tribes and racial groups, over territory ranging from Zanzibar to Lake Victoria. Among the peoples on whom records were obtained are Jaluo, Bantu, Kavirondo, Kikuyu, Kamba, Nandi, Digo, Giriama and Zanzibarese.

Science News Letter, October 9, 1948

GENERAL SCIENCE

New Group To Study Conflict and Cooperation

➤ SCIENTISTS interested in the study of conflict and cooperation at all levels of life are now organizing a permanent body to make their own cooperation more effective. Formation of the new society, which as yet has no name, was decided upon at a special symposium held recently in Washington. At this meeting a comparison of views and working methods by botanists, zoologists, anthropologists, sociologists and workers in several other scientific fields convinced the participants that they had so much in common that a grouping for joint action would be justified.

Immediate goal of the new society will be to discover, as objectively as possible, the extent to which conflict among living organisms, whether microbes or men, is inevitable and even useful, and to what extent cooperation exists in the natural world and what its consequences are. Ultimately it is hoped to find possible applications of the facts thus discovered to the problems of conflict among human individuals, groups and nations.

Chairman of the organizing committee is Dr. Edward F. Haskell of the Society for Applied Anthropology, with headquarters in New York.

Science News Letter, October 9, 1948

NE FIELDS

MEDICINE

Growing Old Has Some Health Advantages

➤ GROWING OLDER has some advantages on the health side, Dr. Wingate M. Johnson, of the Bowman-Gray School of Medicine, Wake Forest College, told members of the Medical Society of the District of Columbia, meeting in Washington.

Older people usually have much better resistance to infectious diseases, he pointed out. Migraine headaches usually disappear soon after middle life. Diabetes is less severe in the old than the young. Cancer progresses much more slowly.

While the muscles become flabbier, the bones more brittle and the joints stiffer, vigorous exercise is seldom required of the older man, Dr. Johnson said. Hence there is less demand on his muscles and he is not so apt to break his bones.

Science News Letter, October 9, 1948

VETERINARY MEDICINE

Find Metal in Animals With New Apparatus

➤ IF YOUR favorite cow inadvertently swallows a bit of baling-wire, or stops a bullet fired by some trigger-happy deer-hunter, it may soon be possible to locate the offending piece of metal with a device built on the same principle as a wartime land mine locator. The new apparatus, which still awaits clinical tests by veterinarians of the Army's Medical Department, was developed in Fort Monmouth, N. J., by technicians of the Army Signal Corps.

As in the mine locator, a flat "search head" is passed over the area where the presence of offending metal is suspected. Interference with the device's magnetic field by metal causes a change in the sound heard by the user in his ear-phones.

If successful, the apparatus should be a great help to veterinarians generally, since X-rays of animals are difficult to make and frequently not adequate.

Science News Letter, October 9, 1948

ENGINEERING

Humidity Recording More Accurate with New Device

➤ ". . . NOT THE HEAT but the humidity" may be recorded more accurately in the future, thanks to a new device developed at the National Bureau of Standards.

A humidity test apparatus, designed by Arnold Wexler and developed under the sponsorship of the Department of the Navy's Bureau of Ships, produces air of known humidity. This is used to calibrate the instruments used for making readings of the humidity. The new apparatus was developed primarily to test the humidity-sensing elements in the radiosondes used to collect atmospheric data for weather forecasting. Other applications for the testing equipment may be found in the fields of refrigeration and air-conditioning, it is predicted.

A divided flow of air at velocities of up to 1,500 feet per minute is used in the apparatus to produce air of known relative humidity at temperatures from zero to minus 40 degrees Centigrade.

Dry air entering the apparatus is divided by a proportioning valve so that part of it is kept dry while the rest is saturated by passing over trays of ice. In a mixing chamber, the dry air is combined with the saturated air in predetermined proportions to produce the desired humidity.

Science News Letter, October 9, 1948

ENGINEERING

Coal-Burning Gas Turbines Are Best for Locomotives

➤ GAS TURBINES, burning coal, may power locomotives on future trains, an engineer declared at the annual Indiana Coal Conference in Terre Haute.

Dr. John T. Rettaliata, dean of engineering at the Illinois Institute of Technology, termed the coal-burning gas turbine "the most serious competitor to the presently popular diesel locomotive." He added that the gas turbine will offer the "ultimate in locomotive design."

A 4,000-horsepower locomotive which will burn coal is now nearing the test stage. It is expected to have lower fuel and maintenance costs than any other locomotive in history, Dr. Rettaliata said.

In the gas turbine, direct current type of electric transmission can be used, as is done in the diesel-electric type. But pulverized coal is burned in the combustion chamber to produce the gas which drives the turbine. The power plant includes a turbine which drives a compressor, and through a reduction gear, the generator.

By using a large amount of excess air, a clear stack free from smoke results, the engineer explained. This is important in meeting the requirements of present city ordinances, he pointed out.

Fuel costs of the coal-burning gas turbine locomotive are estimated at half those of a diesel, while lubrication costs will be as little as one-tenth, Dr. Rettaliata said.

Using coal as the fuel offers other advantages than economy, too, he suggested. Coal reserves are expected to last about 3,000 years, while oil reserves may last only 15 years, Dr. Rettaliata estimated. And the use of coal would help customer relations for railroads which get much of their revenue from hauling coal.

Science News Letter, October 9, 1948

PLANT PHYSIOLOGY

Radioactive Carbon Shows Cane-Sugar Formation

➤ RADIOACTIVE CARBON from Oak Ridge was used in producing definite proof that green leaves can add together the two simple sugars, glucose and fructose, to form cane sugar or sucrose, by Dr. Constance Hartt, research plant physiologist of the Hawaiian Sugar Planters' Association.

It had long been known that if cut leaves are placed in glucose-fructose solution in the dark, there is an increase in the amount of cane sugar they contain. However, until now it had not been conclusively demonstrated that the simple sugars actually entered the leaves and became changed into cane cugar.

Dr. Hartt first made radioactive glucose and fructose by "feeding" radioactive carbon dioxide to sugarcane leaves in the sunlight, and then chemically converting the sugar thus produced into the form needed for the experiment. Then these radioactive sugars were supplied in solution to other cane leaves in darkness, with all exchanges of material checked by minutely accurate quantitative methods.

The new cane sugar formed in the leaves was radioactive. Since the only possible source of radioactivity under the conditions of the experiment was the glucose-fructose solution, it proved definitely that the new cane sugar came from the two simpler sugars. Moreover, the total radioactivity of the cane sugar was very close to the value calculated on the basis of the twin sugars in the solution.

Science News Letter, October 9, 1948

ENTOMOLOGY

Spiders Digest Prey Before Eating It

➤ SPIDERS DIGEST much of their prey before eating it, R. E. Snodgrass of the U. S. Department of Agriculture points out in a new Smithsonian Institution publication. They wet their food with a digestive juice from their stomachs. This digests the soft parts to a liquid, which the spiders then swallow. So powerful is the enzyme that small lizards and fish captured by big tropical spiders can be liquefied in as little as two or three hours.

The publication is devoted mainly to a study of the mouthparts of mites and ticks, which are zoological second cousins of the spiders. Like the spiders, these forms have nowhere near as well-developed mouthpart systems as their more progressive distant kinsmen, the insects. They are therefore also dependent on liquid diets. Some of them suck up such nourishment as they can find on decaying plant materials. Others, notably the ticks, have developed an ability to feed on the blood of larger creatures, and have thus become pests and even carriers of dangerous diseases.

Science News Letter, October 9, 1948

ASTRONOMY

Sun Is Hissing at Us

Solar static may cause streaking in television and interfere with high frequency radio reception. Giant "mirrors" will be used to explore the sun's outbursts.

By MARTHA G. MORROW

► THE SUN is hissing at us in a high-pitched voice. And we on earth are just beginning to listen to find out why—and how.

The sun is constantly radiating vast amounts of energy of one sort or another. Light and heat are those with which we are most familiar.

As we use higher and higher frequencies in our scramble for radio space, energy reaching the earth in the radio frequency bands becomes of increasing importance.

Solar noise, which interferes with radio reception at ultra-high frequencies, is a steady hiss. Upon this are often superimposed "puffs" and "swishes" lasting but a second or less. When the swishes overlap, a grinding noise results.

Solar static comes to us on the same frequencies as those used for FM, television and radar.

In a television set, solar static may cause streaking on the screen and picture jumpiness. Intense bursts of solar energy that last for several hours cause a radar set to go blind when pointed in the direction of the sun.

But someday this very static may be harnessed to serve us. If we learn how to predict intense bursts of solar static, in wartime air raids may be scheduled for those days when the enemy's radar will be least effective. For peacetime, radio sextants may be developed so that solar static indicates the position of a plane or ship. Such a device would be effective, rain or shine, and be completely independent of ground stations.

Waves of Energy

Solar static does not reach the earth as noise that you can hear, but as electromagnetic energy. The waves can be turned into sound or used to draw lines on a chart.

Giant "mirrors" 10 to 25 feet across are being installed to explore outbursts from the sun. Some are solid metal, others are of wire screening.

Two of these enormous mushrooms have been set up at the National Bureau of Standards' radio propagation laboratory at Sterling, Va. Originally Giant Wurzburgs, a type of radar used by the Germans, these instruments have been converted to record solar noise. Brought back to this country by the Army Signal Corps, their steel mesh mirrors are 25 feet across.

A small antenna in the center of the basket-shaped mirror receives solar static, which is carried by cable to the electronic equipment in an adjoining building. One saucer is already at work on the 480 to 500 megacycle band; the other has just begun to collect static.

With these instruments Grote Reber, in charge of the Bureau of Standards' project, hopes to discover:

1. Frequencies on which the solar noise is strongest.
2. If the static varies with the seasons.
3. Whether or not there is a long-term fluctuation.

At Cornell University, W. E. Gordon prefers to call his instrument a "radio telescope." Director of the Microwave Astronomy Project sponsored jointly by the university and the Office of Naval Research, he pictures the saucer-shaped radio antenna as the mirror of the telescope. Its wire surface collects radio waves an inch or so in length. A radio receiver replaces the usual eyepiece.

Follows the Sun

Designed to study static at several wave lengths, the instrument can follow the sun automatically in its daily rising and setting. An audible rather than a visible picture results. It will be used to study the relationship of solar static to sunspots.

Not screens, but solid metal disks are used at the Naval Research Laboratory at Anacostia, D. C., to collect the sun's radio waves. The two instruments, designed to record energy at wave lengths of ten centimeters or less, are each ten feet across and painted black to cut down the heat, which otherwise would be focused at the antenna.

Although solar static can be heard whenever earphones are plugged in, electronic devices are normally used to make the electromagnetic energy record its presence in the form of an inked line on a strip of paper.

Absorption of radio waves by oxygen and water vapor in our own atmosphere is one of the chief projects to be investigated by the Navy team headed by J. P. Hagan, with F. T. Haddock as his right-hand man.

Only within the past two decades have we on earth been aware of static coming out of the depths of the universe. Noises originating outside our planet were discovered in 1931 by K. G. Jansky of Bell Telephone Laboratories. The hiss he detected came not from the sun, but from the Milky Way.

While studying the direction of arrival of thunderstorm static at Holmdel, N. J., he observed that a small residual static remained even when there were no local or distant showers. This static Mr. Jansky traced to the heavens. The strongest signals came from the direction of the center of the Milky Way, in the constellation of Sagittarius, the archer.

Noise originating in the Milky Way can be detected by the same equipment as that designed to study static from the sun.

Two radio enthusiasts helped attract attention to the cosmic hisses a decade or so ago. Radio waves in the microwave region were studied by Dr. G. C. Southworth of the Bell Telephone Laboratories; those of meter wave lengths were investigated by Mr. Reber, whose hobby kept him up many nights.

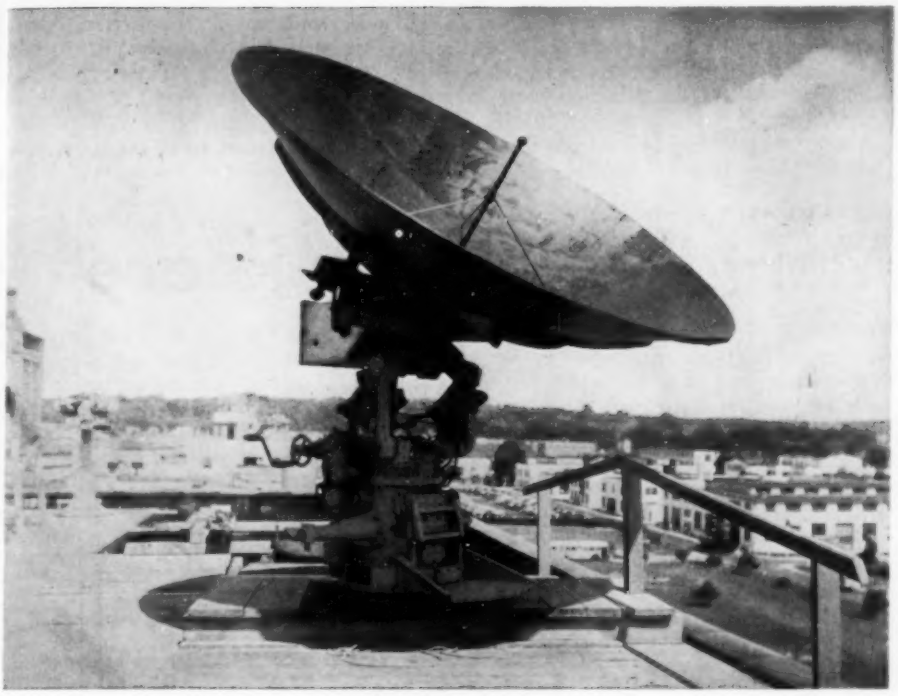
Microwave Radiometer

The study of solar noise at ultra-high frequencies was greatly aided about three years ago by a microwave radiometer developed by R. H. Dicke, then at the Radiation Laboratory, Massachusetts Institute of Technology. His device pretty much eliminates static originating in the instrument itself and makes possible more accurate measurements of the effective temperature of the sun and stars.

Much exact data on the sun has been collected during the last few years by A. E. Covington of the National Research Council at Ottawa, Canada. He has been chiefly interested in energy radiated from the sun at 10 centimeters wave length.

J. F. Dennis, of the Laboratoire de l'Ecole Normale Superieure of Paris and

STUDY SUN'S RAYS—The newly completed radio telescope at Cornell University is the only such apparatus on a college campus.



CATCHES SUN'S HISSES—This solid metal disk is used at the Naval Research Laboratory to collect the sun's radio waves.

guest worker at the National Bureau of Standards, found from Mr. Covington's records a marked correlation between radiations received at 10 centimeter wave length and solar activity.

In the visible region, spots appear much darker than the rest of the sun because they are radiating less energy. But at 10 centimeters, Mr. Dennis finds sunspots radiate great amounts of radio energy and thus are many times "brighter" than the rest of the sun.

His analysis shows that the solar radio energy is proportional to the size and number of visible spots, and to the magnetic field of the individual spots.

In Australia, J. L. Pawsey of the Council of Scientific and Industrial Research used an ingenious interference technique to show by direct measurements that radio waves actually come from sunspots. Normally, not just one section of the sun's disk, but all of the energy radiated by the whole disk is studied. In England also, M. Ryle and D. D. Vonberg of the Cavendish Laboratory, Cambridge, have been concentrating on energy radiated by the spots.

The sun explored by radio waves is slightly larger than that seen visually. We see energy originating in the bright photosphere; we hear waves coming from the sun's outer surface or corona. Thus science has a new tool for estimating the temperature of various layers of the sun. And radio waves show a much hotter solar atmosphere than its fiery disk indicates.

At centimeter wave lengths, the sun appears to have a bright limb and dark center. During the recent total eclipse, as much as four percent of the sun's energy continued to reach the earth during totality.

Sunspots sometimes can be found by radio a day or so before they are carried far enough around the sun's edge to be seen visually.

Thus we are beginning to learn much about the sun, source of our heat, light and other energy. Hisses from the sun are attracting the attention of an ever-increasing number of radio engineers, astronomers and others anxious to use this new means of exploring our nearest star.

Today men listen to the static from the sun, and attempt to discover what the noises mean. Instruments and brains are at work—many more will soon be pressed into service in the United States and throughout the world.

Science News Letter, October 9, 1948

ANTHROPOLOGY

Upper Right Leg Bone Is New Man-Ape Clue

➤ AN UPPER RIGHT leg bone found in South Africa is the latest link in the evidence showing that the man-ape, a creature higher than the modern apes and lower than the most primitive man, walked erect on its hind feet.

The bone was brought back by Dr. Frank Peabody, of the University of California's African Expedition.

The man-ape, which was first discovered by Dr. Robert Broom of the Transvaal Museum in South Africa, had a larger brain capacity than modern apes and an almost human pelvis. There is a possibility, Dr. Peabody said, that the man-ape was contemporary with the early forms of man and that it may have lived as late as the early ice age. The ice age which was tens of thousands of years ago is still comparatively recent in terms of the age of life on the earth.

Although Dr. Broom reported that the man-ape could use its hands for the manipulation of tools and weapons, Dr. Peabody found no evidence that he used implements or fire.

Three tons of fossils were shipped to the University of California by the expedition. An analysis of the animal fossils may

WHITHER AMERICAN SCIENTISTS?

Will they keep on knuckling under to the military . . . the "loyalty" boards . . . the Un-Amer. Activities Committee . . . the whole war-ward hysteria?

The scientists' problem of patriotism in the atomic age—can they be loyal to both science and the politicians running the state? . . . Must science remain "the drab and slut of capitalism" (Vernon Parrington)?

What's happened to the atomic scientists' 1946 upsurge of responsibility to civilization?

CARL DREHER, engineer and writer, probes these and related questions in the central feature in the latest phamphlet of Louis Adamic's "Trends & Tides" (T&T) Series. Just Out.

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Do You Know?

Some 5,000 Australian *orchids* are now being sent weekly to the United States.

Wool is a cool-country commodity in both production and use.

Storage batteries and electrical cable coverings consume about half the *lead* used in the United States.

Experiments to obtain *rayon* from eucalyptus gum fiber are under way in Australia.

The *virus* of foot-and-mouth disease, so destructive to cattle, very rarely affects human beings.

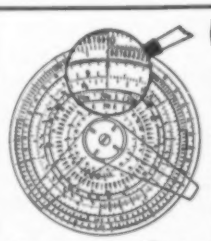
Chipmunks living on the Mammoth Hot Springs Terraces in Yellowstone Park drink hot water from the springs and seem to like the hottest water best.

American *railroads* operate a "navy" consisting of some 2,000 units; they are largely ferries, tugboats, car floats, barges and lighters used in harbor and ferry operations.

Sweet potato contains a rich store of carotene which gives it the yellow color but changes in the body to vitamin A; it also contains vitamins B and C, and starch and sugar which furnish high energy or fuel value.

The use of *lithium* has greatly increased, partly as a result of wartime developments; in the form of metal, salts or alloys, it is used in pyrotechnics, welding and ceramics, as a grease for airplane engines, and in removing oxygen from heat-treating furnaces.

A commercial product known as *Lignosite* is made by a refinement of ethyl alcohol produced by fermentation of the waste liquor in wood pulp mills; it is nearly pure calcium lignin sulfonate and is valuable in the cement and adhesive industries.



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lead to the determination of the times when these animals lived. Fossil plants also will help in determining the periods when various plants and animals flourished in South Africa.

A large collection of fossils from Karroo, near the southern tip of Africa, where there are rich deposits of certain periods, contains mammal-like reptiles which bridge the gap between reptiles and mammals in evolution.

Science News Letter, October 9, 1948

GENERAL SCIENCE

Mental Battle for Peace

➤ A MENTAL BATTLE for world peace was fought in Boston, as leaders in education, science and culture opened sessions with one eye on Paris and the other on their plans for defending peace in the minds of men.

Assistant Secretary of State George W. Allen, opening UNESCO National Commission sessions, challenged American scientists to find any middle ground between subjection of scientific beliefs to the dictates of political dogma, as in Soviet Russia, and the traditional freedom of science. He similarly asked world churchmen where is the middle ground between East and West on freedom of religion.

Denounce one-party dictatorship in Russia, Secretary Allen demanded of Progressive Party candidate Wallace, by inference.

Told by Secretary Allen that "It is entirely possible for capitalism and communism to exist in the world side by side," but that democracy and totalitarianism cannot do so, the conference turned to such details as reconstruction of devastated laboratories and colleges, teaching everybody to read and write, and keeping world news for press and radio free and uncensored.

President Milton S. Eisenhower of Kansas State College, speaking as chairman of the U. S. UNESCO Commission of One Hundred, said this group must be a militant organizing force for peace, despite gloomy prospects at Paris.

At the meeting scientists heard proposals for international observatories and laboratories, better exchange of information, more interchange of scientists between various nations, and greater attention to conservation and increase of world food supplies for the growing world population.

Science News Letter, October 9, 1948

MEDICINE

Don't Burp the Baby

➤ DON'T "BURP" the baby. This advice, contrary to that in all the baby books, was given by Dr. William F. Burdick, associate professor of pediatrics at Georgetown University School of Medicine, at the meeting in Washington of the Medical Society of the District of Columbia.

Twins who at two and one-half months started vomiting most and sometimes all of their feedings were cited as an example of the trouble burping can cause. Their mother reported she never put the babies down until they got up their "bubbles," even though it sometimes took 15 minutes. When she was persuaded to let them suck without interruption until they seemed satisfied and then to put them down without burping, their vomiting stopped.

If baby shows discomfort, there may be some value to the burping procedure, Dr. Burdick said, but he thinks it is often carried too far. It takes a reversal of the normal peristaltic movement of the digestive tract to achieve a burp, he pointed out. The same reversal occurs in vomiting. This may explain the vomiting of some babies. Or, he suggested, they may vomit from resentment over being forced to burp.

Put the newborn baby's cheek against his mother's breast the first time he is brought in to nurse. This, Dr. Burdick advised, will avoid some feeding troubles. It will let the baby's "rooting" reflex come into play. Feeling the smooth surface, he will start rooting with his mouth for the nipple. Dr. Burdick criticized the practice of nurses who grasp baby's cheek and try to turn his head toward the nipple. The reflex in this case makes the baby turn toward the nurse's palm instead of the breast.

Science News Letter, October 9, 1948

RADIO

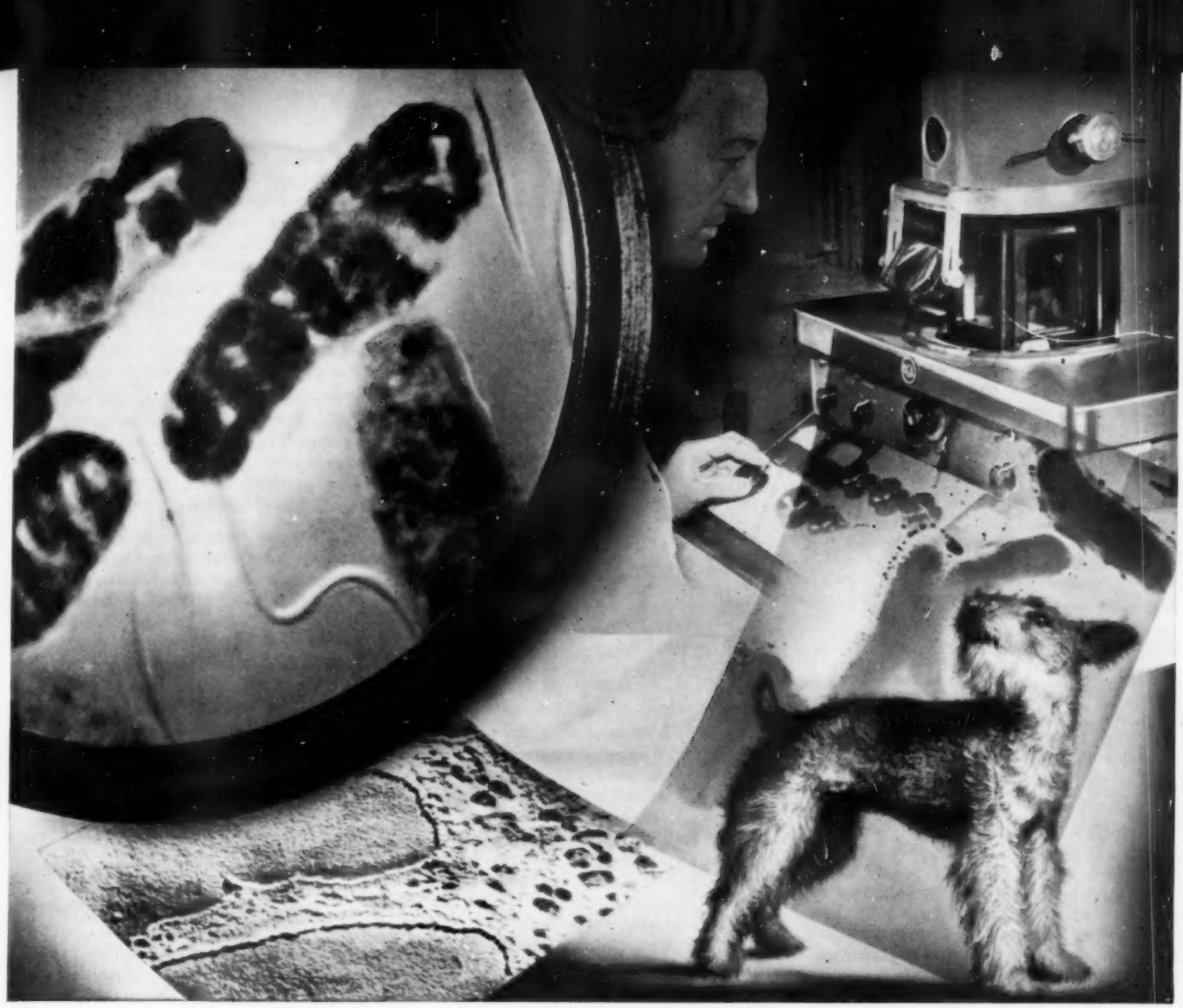
New Device Checks Up on Radio Station Frequency

➤ A NEW DEVICE that can detect a difference of five electrical impulses in a million has been developed to reveal when a radio station is broadcasting off its assigned frequency.

Developed by General Electric Company engineers, the new AM station monitor uses a new type of electronic circuit. The monitor checks up on amplitude of broadcast waves and the power being transmitted, as well as measuring frequency.

About the size of an egg crate, the monitor is relatively small for such equipment.

Science News Letter, October 9, 1948



Electron microscope, perfected at RCA Laboratories, reveals hitherto hidden facts about the structure of bacteria.

Bacteria bigger than a Terrier

Once scientists, exploring the invisible, worked relatively "blind." Few microscopes magnified more than 1500 diameters. Many bacteria, and almost all viruses, remained invisible.

Then RCA scientists opened new windows into a hidden world—with the first commercially practical electron microscope. In the laboratory this instrument has reached magnifications of 200,000 diameters and over. 100,000 is commonplace . . .

To understand such figures, picture this: A man magnified 200,000 times could lie with his head in Washington, D. C., and his feet in New York. . . . A hair similarly magnified would appear as large as the Washington monument.

Scientists not only see bacteria, but also viruses—and have even photographed a molecule! Specialists in other fields—such as industry, mining, agriculture, forestry—have learned unsuspected truths about natural resources.

Development of the electron microscope as a practical tool of science, medicine, and industry is another example of RCA research at work. This leadership is part of all instruments bearing the names RCA, and RCA Victor.

• • •

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ASTROPHYSICS

Sun's Rays Harm Cloth

➤ LIGHT RAYS of short wavelength damage cotton textiles much more drastically when these rays alone strike the fabric than when mixed with the other light-rays from the sun.

This observation of the effect on cotton sheeting of a narrow band in the blue end of the sun's spectrum was made by P. J. Fynn, J. E. Sands and K. S. Campbell of the U. S. Department of Agriculture's Southern Regional Research Laboratory.

While all sections of the sun's spectrum tend to damage the cloth, the energy from the ultraviolet and blue spectral regions has by far the most drastic action. The damaging effect is reduced, however, when these light rays are mixed with those from the yellow and red sections of the spectrum, they report in the TEXTILE RESEARCH JOURNAL (June).

Filters transmitting predominantly ultraviolet, blue, yellow, red and infrared light were used for the study as well as a sixth glass that let through all rays reaching the earth at sea level.

Samples from the same piece of kier-boiled cotton sheeting were exposed simultaneously. Some were placed in a specially constructed cabinet designed to eliminate in so far as is possible all factors other than sunlight that might harm the textile. The cabinet was adjusted so that during exposure the samples were always perpendicular to the sun's rays.

Other pieces of cotton sheeting were placed in open racks, some receiving the full rays of the sun, others protected by filters but open to free air circulation. Some faced north, some south, some directly upward.

A comparison of samples from controlled and uncontrolled exposures indicated that, in the absence of damage due to microbes or acid atmosphere, sunlight could account for practically all the damage caused by exposure to the elements. The damage was greater when the samples were always perpendicular to the sun.

Radiant energy from some parts of the sun's spectrum obviously damaged the material more than others. Light rays of short wavelength caused the most trouble. But the degrading influence of solar radiation is not limited to the short wavelength portion of the spectrum, the scientists found. In eight months at least one-fifth of the fabric's strength was lost through exposure to the longer wavelengths of energy as transmitted by the yellow and red filters.

Science News Letter, October 9, 1948

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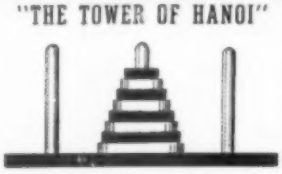
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ENTOMOLOGY

Germ-Carrying Mosquitoes Found on Wake Island

➤ DISEASE-CARRYING mosquitoes, hitherto unknown on mid-Pacific Wake island, have been found there since the war, reports Dr. W. C. Reeves of the University of California School of Public Health.

The Jap invaders, who captured the island early in the war in the face of epic resistance by the small Marine garrison, are apparently responsible for the presence of one species, *Aedes aegypti*, familiar as the carrier of yellow fever. Another species of the same genus, *Aedes albopictus*, has also been found; its mode of reaching the island is uncertain.

Both these species are capable of carrying another disease, dengue fever, which is considered more of a practical menace in the Pacific islands than is yellow fever.

Along with the second Aedes species was found a malaria carrier, *Anopheles subpictus*, which seems to have come from the Philippines; though this has not yet been certainly proved.

Dr. Reeves believes that at least one of the species, *Aedes aegypti*, can be eradicated from Wake, since its breeding habits make it largely dependent on cisterns, barrels and other man-provided supplies of water. Because of the island's importance in trans-Pacific air traffic he feels that such a drive should be undertaken.

Science News Letter, October 9, 1948

ORNITHOLOGY

Robins in Arctic Alaska Have 21-Hour Working Day

➤ ROBINS in arctic Alaska work as many as 21 hours a day during nesting season. This almost sleepless activity was reported by Martin Karplus, science student at Harvard University, who spent the past summer in the region of Point Barrow, on a Navy-sponsored study of bird migration.

When some of the birds they were supposed to be watching failed to turn up, Mr. Karplus and his chief, Dr. Donald R. Griffin, spent part of their time closely observing the work of a pair of robins at a spot about a hundred miles southeast of Point Barrow, which is the "farthest north" for the species. They had their nest in a willow about five feet high—which is a giant tree for that latitude.

All day and almost all of the midnight-sunned night the parent birds toiled, bringing food for the always-gaping mouths of their young. Only around midnight did they catch a little sleep, under the still-bright sky. Then they were at it again.

The young robins showed the effects of the abundant feeding they received. They grew very rapidly, and were ready to attempt their first short flights in ten days, instead of the two weeks or so required in these lower latitudes.

Mr. Karplus was chosen for last summer's research task while he was still a freshman at Harvard, because he has already done ornithological work of professional grade. Even as a 'teen-age winner of a Westinghouse Science Scholarship in the 1947 Science Talent Search he turned in a study of bird migrations rated as fully mature. The Science Talent Search is conducted by Science Clubs of America, administered by Science Service.

Science News Letter, October 9, 1948

CHEMISTRY

Mildew-Checking Chemical Locked into Linens

➤ MILDEW-PREVENTING chemicals may be effectively locked into linens by modification of an old method for fireproofing textiles. Three hundred pounds of laundry can now be treated for a few cents, and the life of the fabric greatly prolonged.

The process was developed by Monsanto Chemical Company working in cooperation with Morgan Linen Service Company in St. Louis. It can easily be adapted to normal commercial laundry washing procedures.

A concentrated solution of sodium pentachlorophenate, a water-soluble fungicide, is basis of the treatment. The treating bath is prepared by adding eight ounces of an approximately 30% solution of the chemical to about 40 gallons of water in a standard wood washer. Clothes to be treated are rinsed in this solution for five minutes.

Science News Letter, October 9, 1948

Plastic Coasters and Tiles
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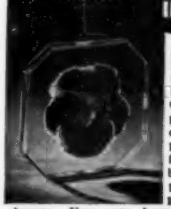
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Books of the Week

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ANA PUBLIC RELATIONS WORKSHOP: A Manual of Practical Public Relations Techniques Prepared for the Guidance of the National Membership of the American Nurses' Association—*American Nurses' Association*, 32 p., illus., $2.50. Of interest to anyone who is trying to let the community know about a "cause."

THE CLINICAL APPLICATION OF PSYCHOLOGICAL TESTS: Diagnostic Summaries and Case Studies—Roy Schafer—*International Universities*, 346 p., $6.75. A book for psychologists, psychiatrists and social workers showing how tests can be useful in diagnosing mental ills. This is because a man's characteristic way of thinking depends on the personality that underlies it.

A COLLECTION OF TREE SPECIMENS FROM WESTERN ECUADOR—Elbert L. Little, Jr.—*U. S. Department of Agriculture*, 83 p., illus., paper, free on request to the U. S. Dept. of Agriculture. A special issue of "The Caribbean Forester." Ecuador, the article states, is botanically one of the least known countries in South America.

FACTORS AFFECTING THE TECHNICAL HARDNESS OF MAGNESIUM—Louis A. Carapella and William E. Shaw—*Light Metal Age*, 4 p., illus., paper, free on request to Mellon Institute of Industrial Research, University of Pittsburgh, Pittsburgh 13, Pa.

FOREST PLANTING IN THE CARIBBEAN NATIONAL FOREST: PAST EXPERIENCE AS A GUIDE FOR THE FUTURE—Jose Marrero—*U. S. Department of Agriculture*, 128 p., illus., paper, free from U. S. Dept. of Agriculture. A special number of the magazine, "The Caribbean Forester." In both English and Spanish.

HEALTH TEACHING IN SCHOOLS: For Teachers in Elementary and Secondary Schools—Ruth E. Grout—*Saunders*, 320 p., illus., $4.00. Furnishing not only the principles of health education but also materials for use in class.

HOW TO CONQUER YOUR HANDICAPS—Marie Beynon Ray—*Bobbs-Merrill*, 336 p., $3.00. Directed to the person who has some variety of handicap (and who doesn't) and intended to show how it can be turned into an asset.

HOW TO DRAW TECHNICAL ILLUSTRATIONS—Linsley and Hawkins—*Studio*, 64 p., illus., $1.00. Technical illustration is somewhere between mechanical drawing and "art." It is a skill most useful to the scientist.

POLIO AND ITS PROBLEMS—Roland H. Berg—*Lippincott*, 174 p., illus., $3.00. The story, in non-technical language, of what is being done and has been done to fight this disease.

THE ROCKEFELLER FOUNDATION ANNUAL REPORT 1947—*Rockefeller Foundation*, 374 p., illus., paper, free upon request to Rockefeller Foundation, 49 West 49 Street, New York. An account of a wide variety of researches.

THE STORY OF THE JOHNS HOPKINS: Four Great Doctors and the Medical School They Created—Bertram M. Bernheim—*McGraw-Hill*, 235 p., illus., $3.50. Reminiscences of four great men, the history of a famous medical school and an account of great moments in medical history all in one interesting book.

THE STUFF WE'RE MADE OF—W. O. Kermack and P. Eggleton—*Longmans*, 2d ed., 356 p., illus., $3.00. Two new chapters on vitamins and other growth factors have been added to this interesting book on biochemistry.

THIRD REPORT TO CONGRESS ON THE UNITED STATES FOREIGN RELIEF PROGRAM: For the Quarter Ended March 31, 1948—Department of State—*Govt. Printing Office*, 104 p., illus., paper, 30 cents. How the Government spent $299,000,000 in five countries devastated by war.

UNDERSTANDING TELEVISION: What It Is and How It Works—Orrin E. Dunlap, Jr.—*Greenberg*, 128 p., illus., $2.50. A book for laymen explaining how you see at a distance.

VIRAL AND RICKETTSIAL INFECTIONS OF MAN—Thomas M. Rivers—*Lippincott*, 587 p., illus., $5.00. An authoritative work for medical students and physicians priced low because its publication was aided by the National Foundation for Infantile Paralysis.

Science News Letter, October 9, 1948

WILDLIFE

Bird's Ten-Minute Meal Costs State Fish, and $8.10

➤ A HUNGRY LOON has cost the state of New Hampshire $8.10 for one ten-minute meal.

The story of the greedy loon is told by the disappointed conservationist who saved the loon's life so that the bird could enjoy its brief but expensive feast.

Hilbert R. Siegler of the New Hampshire Fish and Game Department explained in the JOURNAL OF WILDLIFE MANAGEMENT that he was with a group of department members on a hunting trip. The party was at Second Connecticut Lake in northern New Hampshire.

The loon was found feeding near the group's cabin. Several of the party urged shooting the bird because it was near trout and salmon waters. But Mr. Siegler says he intervened and prevented the bird from being shot for three days.

On the fourth day a truck arrived with two-year-old salmon to be planted in the lake. While the fish were being put in the lake, the loon suddenly appeared. Ten minutes later, the loon was shot.

In its gullet were nine salmon. Cost of raising these fish is estimated at 90 cents apiece.

"In approximately ten minutes of feeding," Mr. Siegler laments, "this loon had cost the State $8.10, eliminated nine of New Hampshire's sportiest and most highly prized fish, and given my efforts at wildlife conservation a severe set-back."

But Mr. Siegler has no hard feelings about loons. He points out that the hatchery-raised fish were highly concentrated and pretty tempting to the bird.

Science News Letter, October 9, 1948

NUTRITION

Hamburger Most Popular, Says Hotel Food Expert

➤ HAMBURGER STEAK is the most popular American dish.

More people eating in restaurants, cafeterias and soda fountains today will be ordering hamburgers than will be choosing any other kind of food, Arthur W. Dana, kitchen consultant for the American Hotel Association, declared. Mr. Dana taught at a summer course in the Hotel Administration School at Cornell University.

Milk is becoming more popular, he added. At least half of the diners in industrial cafeterias will choose it instead of coffee.

Restaurant patrons apparently eat more when the price they pay includes the entire meal than when it includes only the entree and vegetables. If dessert and appetizer are extra, about 60% will take dessert. Only 20% to 30% will take an appetizer if they have to pay separately for it.

Tastes differ widely in the matter of cooked vegetables, Mr. Dana explained. Southerners want their vegetables well cooked and boiled with fat meat; northerners would rather have theirs cooked quickly with butter added when the vegetable is done. The northerners' attitude agrees with the teachings of nutritionists who say that quickly cooked vegetables contain more vitamins and minerals.

Science News Letter, October 9, 1948

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⚙ *CORN CUTTER, a newly patented kitchen tool to remove cooked sweet corn from the ear, has a handle, and an ordinary rigid cutting blade for paring which extends into two semi-flexible, semi-circular blades to fit around the ear of corn. The flexibility of these overlapping circular blades permits them to adjust themselves to the size of the ear.*

Science News Letter, October 9, 1948

⚙ *MAGNIFIER-ILLUMINATOR, which combines in one instrument means for lighting and enlarging objects for visual examination, utilizes three six-watt, nine-inch fluorescent tubes and a high-grade five-inch lens which brings objects into sharp focus at 13 inches. It can be clamped into any desired position.*

Science News Letter, October 9, 1948

⚙ *HIGH POWER MAGNETRON tube, with a continuous wave output of 50,000 watts at the extremely high frequency of 1,000,000,000, cycles per second, has an output estimated roughly at 1,000 times as high as that of a standard broadcasting station. Earlier magnetron tubes made the war-developed radar a success.*

Science News Letter, October 9, 1948

⚙ *RELIEF MAPS of molded plastic, for use in studying geography and geology, are light in weight, extremely durable and can be readily stored or displayed, as is evident from the picture. In making, pre-printed vinylite sheets are placed over a plaster mold which in turn was made from an aluminum sheet on which contour details had been formed.*

Science News Letter, October 9, 1948

⚙ *GLASS-SHIELDED, single lamp fluorescent fixtures, which produce soft diffused illumination in places where bare lamp fixtures are unsuitable, include attractively ribbed, opaque glass diffusing panels and end caps with decorated medallions. They are suitable for home as well as commercial applications.*

Science News Letter, October 9, 1948

⚙ *INSERT SHELF for the bathroom medicine cabinet is made of a colored plastic and holds on one end a man's shaving equipment in special slots, and on the other, where the shelf is edged, the toilet preparations which a woman wants to have handy. Extension arms with padded ends fix the shelf in place without the use of tools.*

Science News Letter, October 9, 1948

⚙ *MILK BOTTLE CAP makes a utility dispenser out of a milk bottle. The plastic cap with a side handle fits any standard milk bottle, grabs one side of the bottle top with an elastic grip, and can be opened like any hinged lid by thumb pressure on the lower part of the handle.*

Science News Letter, October 9, 1948

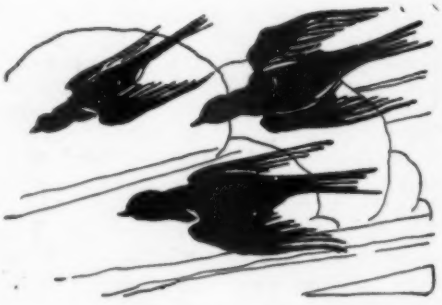
• Nature Ramblings *by Frank Thone* •

➤ COLUMBUS' landing on one of the smaller islands of the Bahamas, that opened up the Western Hemisphere to exploration and settlement, will be celebrated next week in many of our states and cities. Again the daring imagination, skilled seamanship and stubborn determination of the great navigator will receive their due meed of praise.

But Columbus had helpers, barely mentioned in most accounts of his famous first voyage. Their aid seemed slight even to him, yet it came at a critical time, and perhaps prevented failure or defeat just before the moment of final success. These helpers were small birds.

In Columbus' own account of the crucial last few weeks before land was sighted at daybreak of October 12, 1492, he makes mention of signs of land picked up by the sailors of his three little ships—a branch with berries, several pieces of hand-worked wood, birds flying overhead. The latter were of kinds that the Spaniards did not know, but it was quite evident that they were not all sea-birds. Land must not be too far off. Mutterings of possible mutiny subsided, and all eyes strained anxiously towards the horizon, for the first sign of green that might rise above it.

Columbus' Helpers



Two things made possible the observation of those significant flocks of land birds. It was mid-autumn, and the migration of birds that nest on the North American mainland towards their winter homes in the West Indies and northern South America was at its height. Had the three caravels been a little faster or a little slower, they might have missed the high tide of the fall flight, and so encountered few birds, or none.

The second factor that made possible the sighting of the birds was Columbus' choice of course during this terminal part of the voyage. He was sailing westward close to the twenty-fourth parallel of longitude, which carried him straight to the island he subsequently named San Salvador. He did not know it, but he was all the time passing the larger islands of the West Indies, which lay well to the south. Since these islands were the destination of many of the birds he saw, he was actually intersecting their migration routes. Had he turned and followed the first flocks he saw, late in September, he probably would have made his landfall somewhat sooner, and on a larger island.

Science News Letter, October 9, 1948